

Rejection under § 112, Second Paragraph

The Examiner has rejected the claims as indefinite in light of the recitation of the word "kind" in Claim 1. Applicants have amended Claim 1 as the Examiner suggested, and thus the rejection is overcome. This amendment in no way narrows the scope of the claims.

Rejection under § 103(a) Obviousness

A. The Present Invention is not Obvious over Covaleski in view of Kolesov

The claims have been rejected as obvious over Covaleski in view of Kolesov. The Examiner, however, has failed to establish a *prima facie* case of obviousness, and thus Applicants respectfully traverse this rejection.

The Examiner states that Covaleski "discloses a friction member of improved resistance to wear comprising aramid fibers impregnated with and bonded together by means of a heat-curable cement containing a vulcanizable[] rubber which may be carboxylated, a water-soluble, one-step phenolic-type resin and friction modifiers." Office Action at 2. But the Examiner notably admits that Covaleski "does not disclose the concentration of the friction material components." *Id.* at 3.

Thus the Examiner attempts to rely on Kolesov as disclosing a drilling solution with a chemical composition of 61-65 wt% SiO₂; 18-18.5 wt% CaO; 4.6-4.9 wt% Al₂O₃; 13.5-14 wt% Na₂O; 0.3-0.4 wt% MgO; 1.1-1.4 wt% B₂O₃; and 1.5-2.0 wt% K₂O. *Id.* The Examiner admits that the reference composition is "chemically inert and non-soluble in water and hydrocarbons," but concludes that the composition must be soluble as defined by Applicants because the reference composition "contains the same components as claimed herein." Applicants disagree with this characterization.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

M.P.E.P. § 2143. Moreover, “[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.” *Id.* at § 2141.02. A reference can also teach away from combination with a second prior art reference. *Winner Int’l Royalty Corp. v. Ching-Rong Wang*, 202, F.3d 1340 (Fed. Cir. 2000).

First of all, the references are not from analogous art. Covalleski deals with brake material, whereas Kolesov is in the art of oil drilling equipment. “In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992). While the Examiner asserts that “both Covalleski and Kolesov et al. are from the same field of endeavor, friction materials . . . ,” (Office Action at 4), this is plainly not the case. Covalleski deals with friction materials in the art of brakes; Kolesov deals with minimizing friction materials as it “reduce[s] friction between drilling column and walls of [a] well” Kolesov Abstract. Not only are the two references in non-analogous arts (brake material compared to oil drilling equipment), but they address opposite problems (enhancing friction compared to minimizing friction). Thus, the

reference would not have logically “commended itself to an inventor’s attention in considering his problem.” *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). One of ordinary skill in the art, if working with friction elements as in the present invention, would not be motivated to combine the teachings of a friction-reducing reference such as Kolesov.

Additionally, Covaleski explicitly teaches away from combining the invention with that of Kolesov, and thus one of ordinary skill in the art would in no way be motivated to combine or modify the reference teachings. Covaleski teaches that “glass, as the active friction ingredient of a friction element, is too ‘aggressive’ for most commercial applications, the aggressiveness being manifested during use by noise, vibration and/or erratic friction effects when the friction element is engaged with a mating surface.” Covaleski at col. 1, ll. 52-57.

The Examiner further asserts that it would have been obvious “to use fibers with diameters in a range of from 2 μm to 9 μm and average fiber length in a range from 100 μm to 1,500 μm ” since “discovering an optimum value of a result effective variable involves only routine skill in the art.” Office Action at 3-4.

As the diameter and length limitations only appear in Claim 4, this ground for rejection is deemed only applicable to Claim 4. Because the Examiner has failed to establish a *prima facie* case of obviousness for independent Claim 1, as discussed above, dependent Claim 4, which includes all of the limitations of Claim 1, is likewise not *prima facie* obvious for at least the above-stated reasons. Furthermore, the Examiner erroneously presumes that the invention of Claim 4 involves a result-effective variable. A result-effective variable is “a variable which achieves a recognized result,”

and it must be appreciated as such “before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” M.P.E.P. § 2144.05. The Examiner has failed to show that the prior art recognizes that the diameter and length of friction material produces the results disclosed in the specification.

In sum, due to the fact that Covaleski explicitly teaches away from Kolesov, in large part because the two references are in non-analogous arts and have purposes that are at odds, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Furthermore, the invention of Claim 4 does not involve a result-effective variable that can be characterized as “routine experimentation.” Thus, the Examiner has failed to establish a *prima facie* case of obviousness, and the Applicants respectfully request reconsideration of the claims.

B. The Present Invention is not Obvious over Arai in view of Kolesov

The Examiner has rejected Claim 1 and 3-5 as obvious over Arai in view of Kolesov, stating that Arai discloses “a friction material that contains a fibrous reinforcement, a binder, and a friction modifier.” Office Action at 4. While the Examiner admits that Arai does not disclose the concentration of the friction material components, he attempts to make up for this discrepancy with Kolesov, discussed above. *Id.*

Again, the Examiner has failed to make out a *prima facie* case of obviousness, at least because there is no suggestion or motivation to combine Arai and Kolesov. Again, as with Covaleski, the references are from non-analogous arts and address opposite problems. Arai teaches a friction material for use in breaks. Arai at col. 1, ll. 6-7. In

contradistinction, Kolesov, as discussed above, teaches an additive for reducing friction in oil wells.

Additionally, if the suggested combination of references would destroy the invention's intended function or make it inoperable, then there cannot be a motivation to combine. M.P.E.P. § 2143.01; see also *In re Fritch*, 972 F.2d 1260, 1265 n.12 (Fed. Cir. 1992) ("A proposed modification [is] inappropriate for an obviousness inquiry when the modification render[s] the prior art reference inoperable for its intended purpose."). Indeed, the expectation of combining Kolesov and Arai is that the friction properties of the composition would be reduced; that is not the object of the present invention.

In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration and further examination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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